Service Quality Measurements
Measurement Detail

Reporting Dimensions:	**Excluded Situations:**
• Interface type offered for each functional area (See Appendix A) • Business Period (8:00AM to 8:00PM local time versus 8:00PM to 8:00AM , weekends and holidays)	• None
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Interface Type (Identifies each unique interface available to CLECs) • Scheduled Hour Available • Actual Hours Available	• Report Month • Functionality Identification • % Availability of Functionality
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Less than 0.1% of unplanned down time, by interface type, during either business period .

Service Quality Measurements
Measurement Detail

Function:	**Center Responsiveness**
Business Implications:	When CLECs experience operational problems dealing with ILEC processes or interfaces, prompt support by the ILEC is required in order to assure that the CLEC customers are not adversely impacted. Any delay in responding to CLEC center requests for support (e.g., request for a vanity telephone number) will, in turn, adversely impact the CLEC retail customer who may be holding on-line with the CLEC customer service agent. This measure, when gathered for both the CLEC and ILEC, monitors that ILEC handling of support calls from CLECs is at least as responsive as for calls by ILEC retail customers seeking assistance (e.g., calling the business office of the ILEC or call the ILEC to report service repair issues).
Measurement Methodology:	**Mean Time to Answer Calls = Σ [(Date and Time of Call Answer) - (Date and Time of Call Receipt)]/(Total Calls Answered by Center)** **Call Abandonment Rate = (Count of Calls Terminated Before Answer During the Reporting Period)/(Count of All Calls Placed in Queue During the Reporting Period)** **For CLEC Results:** Speed of answer (mean time to answer calls) and call abandonment rates are monitored through the call management technology utilized to distribute calls to ILEC agents supporting CLEC activities (i.e., call receipt personnel staffing ILEC support centers intended for CLEC use). Results for each measure are to be provided separately for each center handing CLEC inquiries. If centers deployed by the ILEC support multiple functions (e.g., both maintenance and provisioning) then the results for each function supported should be separately reported, if feasible. Speed of Answer is determined by measuring and accumulating the elapsed time from the entry of a CLEC call into the ILEC call management system until the CLEC call is transferred to the ILEC personnel assigned to handling CLEC calls for assistance. The elapsed time is measured in seconds and tenths of seconds rounded to the nearest tenth of a second. The Call Abandonment Rate is also monitored through the call management technology for the CLEC service agents. The number of calls received by the call distribution system is counted for the reporting period, regardless whether the call actually is transferred to an agent for processing. In addition, a count is accumulated of all calls received into the call distribution system that are subsequently terminated by the calling party or due to equipment failure before transfer to the service agent for processing. This call termination may occur at any point (e.g., the call may be within an Automatic Call Distributor, within a Voice Response Unit, in an answer queue, or at any other point in the call management system.) **For ILEC Results:** Both Speed of Answer and Call Abandonment Rate, as it relates to the ILEC, will be measured in an identical manner as described for the CLEC. The results for the ILEC business office operations and its repair bureau operations should be separately accumulated, computed and retained. Where call receipt for such operations are commingled and inseparable, then only a single results for each

	measure will be generated and serve as the comparative result for both the CLEC repair support and the CLEC provisioning support results. **Other Clarifications and Qualification:** • Speed of Answer minimum service standards, established in many states for business office, maintenance center, and/or operator services represent a similar ILEC measure and are derived from identical data (although the result displayed may be in comparison to a pre-established standard performance minimum) • For ILEC and CLEC calls, an ILEC Agent answering and placing the caller on hold does not stop timing for purposes of the speed of answer interval. • A Voice Response Unit does not stop the timing for purposes of the speed of answer interval. For a call to be considered answered, the live ILEC Agent must handle the CLEC request. • Results may be reported for the CLEC industry in aggregate to the extent separate carrier-specific support centers are not provided. If separate centers are provided (either for an individual CLEC or a group of CLECs) then results should be gathered and supplied for each center and reported to the CLEC(s) based upon the center providing the specific CLEC's support. • If the ILEC call management technology cannot measure speed of answer for on a call-specific basis, then an alternate methodology that simulates speed of answer based upon the average time for component parts of the call (e.g., queue to IVR + IVR to queue + queue to agent answer) can be utilized by mutual consent of the ILEC and CLECs.

Reporting Dimensions:	**Excluded Situations:**
• Support Center Type (i.e., Center supporting CLEC maintenance, Center supporting CLEC provisioning, ILEC Center supporting retail customer maintenance calls, ILEC Center supporting business office inquiries).	• None

Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Month • Center Type • Mean Speed of Answer • Standard Error for Mean Speed of Answer • Call Abandonment Rate	• Month • Center Type • Mean Speed of Answer • Standard Error for Mean Speed of Answer • Call Abandonment Rate

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Greater than 95% of the calls, by center, are answered within 20 seconds • All calls are answered within 30 seconds.

Service Quality Measurements
Measurement Detail

Billing (BI)

Function:	**Timeliness Of Billing Record Delivery**
Business Implications:	Regardless whether the billing is for retail customer or exchange access service, the timing of ILEC delivery of billing records must provide CLECs with the opportunity to delivery timely bills in as timely a manner as the ILEC; otherwise artificial competitive advantage would be realized by the ILEC. The "mean time to provide recorded usage" and the "mean time to deliver invoices" monitor this situation.
Measurement Methodology:	**Mean Time to Provide Recorded Usage Records ={ Σ[(Data Set Transmission Date)-(Date of Message Recording)]}/(Count of All Messages Transmitted in Reporting Period)** **Mean Time to Deliver Invoices = Σ[(Invoice Transmission Date)-(Date of Scheduled Bill Cycle Close)]/(Count of Invoices Transmitted in Reporting Period)** **For CLEC Results:** Usage Records: This measure captures the elapsed time between the recording of usage data generated either by CLEC retail customers or by CLEC access customers (by the AMA recording equipment associated with the ILEC switch) and the time when the data set, in a compliant format, is successfully transmitted to the CLEC. For each usage record, the calendar date and time of usage recording is compared to the calendar date and time of successful completion of data set transmission to the CLEC. The number of hours and tenths of hours elapsed between message recording and data set transmission will constitute the elapsed delivery time. The elapsed delivery time is accumulated for each usage record with the resulting total number of hours accumulated being divided by the number of complete usage records in all the data sets transmitted. Invoices: This measure captures the elapsed number of days between the scheduled close of a Bill Cycle and the ILEC's successful transmission of the associated invoice to the CLEC. For each invoice, the calendar date of the scheduled close of Bill Cycle is compared to the calendar date that successful invoice transmission to the CLEC completes. The number of calendar days elapsed between scheduled Bill Cycle close and completion of invoice transmission will constitute the elapsed delivery time. The elapsed delivery time is accumulated for each invoice with the resulting total number of days accumulated being divided by the number of complete invoices sent in the reporting period. **For ILEC Results:** Identical computations are made for the ILEC with the clarifications provided below. **Other Clarifications and Qualification:** • The elapsed time for delivery of ILEC usage records is measured from the time of message recording, as captured on the AMA tape of the ILEC, to the time the reformatting of the AMA tape to an EMR format (or equivalent) is completed. • The elapsed time for ILEC invoice delivery is measured from the scheduled

<table>
<tr><td></td><td colspan="2">close date of the retail customer bill cycle to the production of the customer bill in electronic format (i.e., bill is ready for printing) appropriate for delivery to retail customers regardless whether or not such a distribution is immediately undertaken.
• Mean time to deliver usage records is to be reported separately for end user usage, access related usage.
• Alternately billed usage (e.g., bill-to-third party, collect, credit card usage processed through CMDS), although commingled on the daily usage feeds to the CLEC, is to be monitored separately from the directly billed usage with respect to timeliness because of the different and more time consuming settlements and clearing process associated with such usage.</td></tr>
<tr><td colspan="2">Reporting Dimensions:</td><td>Excluded Situations:</td></tr>
<tr><td colspan="2">• End user usage records
• Access usage records
• Alternately billed usage records
• Wholesale Bill Invoices (TSR)
• Unbundled Element Invoices (UNE)</td><td>• Any usage records or invoices rejected due to formatting or content errors.</td></tr>
<tr><td colspan="2">Data Retained Relating To CLEC Experience:</td><td>Data Retained Relating To ILEC Performance:</td></tr>
<tr><td colspan="2">• Report Monthly
• Record Type or Invoice Type
• Mean Delivery Interval
• Standard Error of Delivery Interval</td><td>• Report Month
• Record Type or Invoice Type
• Mean Delivery Interval
• Standard Error of Delivery Interval</td></tr>
<tr><td>Performance Standard in Absence of ILEC Results:</td><td colspan="2">If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete:
• For usage records, separately for access usage and end user usage:
  • Greater than 99.9% records received within 24 hours or usage recording
  • All usage is received within 48 hours of usage recording
• Greater than 99.95% of services resale invoices received within 10 calendar days of bill cycle close
• Greater than 99.95% of wholesale (UNE) invoices received within 10 calendar days of bill cycle close.</td></tr>
</table>

Service Quality Measurements
Measurement Detail

Function:	**Accuracy of Billing Records**
Business Implications:	The accuracy of billing records affects the accuracy of the billing ultimately delivered to local service customers, whether retail service or exchange access service customers. Billing for the elements from which CLEC services are constructed must be validated to assure that only correct charges are paid. This validation is necessary to assure that the cost structure for services is not inflated. Furthermore, charges such as "time and material" related charges may be on the invoice and need to be promptly passed on to customers (by CLECs) to avoid dissatisfaction regarding the timeliness of CLEC billing and to minimize customer inquiries on late billing. Fair competition requires that the accuracy of billing records (both usage and invoices) delivered by the ILEC to the CLEC must provide CLECs with the opportunity to delivery bills at least as accurate as those delivered by the ILEC. Producing and comparing this measurement result for both the ILEC and CLEC allows a determination as to whether or not parity exists.
Measurement Methodology:	**Invoice Accuracy = [(Number of Invoices Delivered in the Reporting Period that Have Complete Information, Reflect Accurate Calculations and are Properly Formatted) / Total Number of Invoices Issued in the Reporting Period)] x 100** **Usage Accuracy = [(Number of Usage Records Delivered in the Reporting Period That Reflected Complete Information Content and Proper Formatting) / (Total Number of Usage Records Transmitted)] x 100** **For CLEC Results:** The completeness of content, accuracy of information and conformance of formatting will be determined based upon the terms of the individual CLEC interconnection agreements with the ILECs. The ILEC will establish a quality control process that is disclosed to CLECs and that is no less rigorous than the most rigorous quality monitoring established in the ILEC billing service contracts for long distance service providers. The quality monitoring process must be disclosed in advance and process auditing must be permitted. The records and invoices delivered by the ILEC must simultaneously meet the standards relating to content, accuracy and formatting in order to be counted as accurate. Each of the above measurements, is expressed as a ratio (expressed as a percentage) of accurate records (or invoices) to the total records (or invoices) delivered. **For ILEC Results:** The results computation for the ILEC is identical to that described for the CLECs. The usage accuracy determination is based upon comparison of the usage records, following conversion to the EMR (or equivalent) format as compared to the internally established content and formatting requirements. Likewise, the accuracy measure for invoice delivery will be based upon a statistically reliable comparison of ILEC invoices to the content, calculation methodology and formatting standards of the ILEC. Separate comparisons are to be made for retail service invoices and access invoices with the results compared to wholesale (TSR) and UNE invoices, respectively. **Other Clarifications and Qualification:** • The usage accuracy measure identified here is similar to the type of measures that the ILEC commonly has instituted in service contracted established with long distance service suppliers who use ILEC billing

	services. • The wholesale invoice accuracy identified here is analogous to the measures contained within the Billing Quality Assurance Programs that the ILECs have with IXCs for monitoring access billing quality. If a sampling process is used to monitor accuracy, then the study results must be reconfirmed no less than quarterly

Reporting Dimensions:	**Excluded Situations:**
• End user usage records • Access usage records • Alternately billed usage records • Wholesale Bill Invoices (TSR) • Unbundled Element Invoices (UNE)	• None
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Record or Invoice Type (per Reporting Dimensions) • Accuracy	• Report Month • Record or Invoice Type (per Reporting Dimensions) • Accuracy

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Greater than 98% of usage records transmitted, by usage type, reflect the agreed upon format and contain complete information. • Greater than 98% of wholesale bill, by invoice type, are financially accurate

Service Quality Measurements
Measurement Detail

Operator Services and Directory Assistance (OS, DA)

Function:	**Speed To Answer**
Business Implications:	In order to assure that an unjustified competitive advantage is not created for the ILEC, the speed of answer delivered to CLEC retail customers, when the ILEC provides Operator Services or Directory Services on behalf of the CLEC, must be no slower than the speed of answer that the ILEC delivers to its own retail customers of equivalent local services.
Measurement Methodology:	**Mean Time To Answer =[Σ(Date and Time of Call Answer) - (Date and Time of Call Receipt)]/(Total Calls Answered on Behalf of CLECs in Reporting Period)** **For CLEC Results:** Speed of answer and call abandonment rates are monitored through the call management technology used to distribute calls to ILEC agents supporting CLEC activities (i.e., call receipt personnel staffing Directory Assistance or Operator Service Positions). Speed of Answer is determined by measuring and accumulating the elapsed time from the entry of a CLEC retail customer call into the ILEC call management system queue until the CLEC retail customer call is transferred to the ILEC personnel assigned to handling CLEC calls for assistance (whether DA or OS). The elapsed time is measured in seconds and tenths of seconds rounded to the nearest tenth of a second. **For ILEC Results:** Identical measures as described for the CLEC with the clarification provided below. **Other Clarifications and Qualification:** • This measure is directly analogous to speed of answer minimum service standards established within many states. • Results may be reported for the CLEC industry in aggregate. • See the "Center Responsiveness" measurement for the treatment of the situation where ILEC call management technology cannot measure speed of answer on a call basis from receipt to answer.

Reporting Dimensions:	**Excluded Situations:**
• Operator Services in Aggregate • Directory Assistance • Processing Method (human versus machine processes)	• Call abandoned by customers prior to answer by the ILEC OS or DA operator
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Month • Call Type (OS or DA) • Mean Speed of Answer • Standard Error for Mean Speed of Answer	• Month • Call Type (OS or DA) • Mean Speed of Answer • Standard Error for Mean Speed of Answer

Service Quality Measurements
Measurement Detail

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • More than 90% of call involving answer by a "live" agent, separately for OS and DA services, are answered within 10 seconds. • All calls involving answer by a Voice Response Unit, separately for OS and DA services, are answered within 2 seconds.

Service Quality Measurements
Measurement Detail

Network Performance (NP)

Function:	**Network Performance Parity**
Business Implications:	The perceived quality of CLEC retail services, particularly when either ILEC services are resold or UNE combinations are employed, will be heavily influenced by the underlying quality of the ILEC network performance. Customers experience the quality of the service provider each time services are used. This metric monitors, when collect for both the CLEC and ILEC and then compared will help show whether CLEC network performance is at least at parity with ILEC network performance.
Measurement Methodology:	**Network Performance Parity = Σ(Network Performance Parameter Result)/(Number of Tests Conducted)** **For CLEC Results:** Based upon a random and statistically reliable (at a preset level) sample of network configurations employed by the CLEC, the network performance parameter (as indicated in the reporting dimension) is monitored based upon generally accepted testing procedures and the resulting parameter value(s) recorded. The measured values are accumulated across the sample base and the mean and associated variance computed **For ILEC Results:** The approach is identical to that described for the CLEC, except that the network performance is measured only for representative ILEC service configurations. **Other Clarifications and Qualification:**

Reporting Dimensions:	**Excluded Situations:**
• Transmission Quality (See Appendix A) • Speed of Connection (See Appendix A) • Reliability (See Appendix A)	• None
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Report Month • Reporting Dimension • Mean Performance Result • Standard Error of Mean Performance • Number of Data Points • Geographic scope	• Report Month • Reporting Dimension • Mean Performance Result • Standard Error of Mean Performance • Number of Data Points • Geographic scope

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Performance Standards in this area are yet to be published.

Service Quality Measurements
Measurement Detail

Interconnection/Unbundled Elements and Combinations (IUE)

Function:	**Availability of Network Elements**
Business Implications:	As CLECs use individual elements as well as element combinations to deliver unique services, it is essential that the UNE functionality operate properly due to the crucial role played by such elements in providing quality retail services. This measure monitors individual network element or element combinations, that do not have an apparent retail analog, to assure that CLECs have a meaningful opportunity to compete through access to and use of element (or combination) functionality.
Measurement Methodology:	**Function Availability[1] = (Amount of Time[2] a Functionality is Useable[1] by a CLEC in a Specified Period)/(Total Time[2] Functionality Was Intended to Be Useable)** **Notes:** **1. These measure may also be expressed in the negative, that is, in term of unavailability.** **2. In some instances, rather than time, the availability will be express in terms of transactions executed successfully compared to transactions attempted.** **For CLEC Results:** Availability will be measured for each unique UNE functionality (or combination of UNEs) that deliver a unique functionality that does not have a reasonable retail service analog. The number of times that the functionality executes properly will be shown in comparison to the number of times that the execution of the functionality was requested or initiated. Availability can apply to both physical and logical (e.g., database) elements. Physical element availability (e.g., links to databases, dedicated transport, etc.) will typically be expressed as the % of time that the functionality is useable compared to the total time in the period being observed. "Useable" will typically means that, when monitored, the element indicates readiness to operate (e.g., an electrical (or equivalent) continuity is detected, expected signaling is returned, etc.). Logical element availability will typically be expressed in terms of the number of transactions successfully executed (e.g., successful database updates, success query responses) compared to the number of transactions attempted. Illustrative examples of availability measures are shown below • A-link: minutes unavailable per year • D-link: seconds unavailable per year • databases: percentage of queries receiving a response • databases: percentage of transactions experiencing time-outs • databases: percentage of queries experiencing a return of unexpected values • routing: percentage of calls blocked **For ILEC Results:** Identical measurements are performed where the ILEC employs the same or reasonably comparable functionality. Where such analogs do not exist, the ILEC is expected to establish benchmark performance levels jointly with the CLEC requesting the functionality. **Other Clarifications and Qualification:**

	• The preceding list of elements is illustrative and is not to be considered exhaustive • ILEC failure to provide timeliness performance that is no worse than what its own operations experience when using comparable functionality or, where comparable functionality is not employed, failure to meet or exceed parameters established as result of negotiation with the CLEC, constitutes failure to deliver nondiscriminatory access. • For each element or element combination requested, where a retail analog is not identified, the ILEC is expected to establish both a availability measure and an availability standard (ILEC functional analog or negotiated) unless the CLEC waives its right for such a measure. • Typical databases for which standards are currently expected are AIN, LIDB and 800 Number.

Reporting Dimensions:	**Excluded Situations:**
• By unique UNE or UNE combinations requested by the CLECs	• None
Data Retained Relating To CLEC Experience:	**Data Retained Relating To ILEC Performance:**
• Month • Element or Element Combination Identification • Result for Agreed Upon Availability Parameter	• To Be Determined

Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Performance Standards in this area are yet to be published.

Service Quality Measurements
Measurement Detail

Function:	**Performance of Network Elements**
Business Implications:	As CLECs use individual elements (as well as element combinations) to deliver unique services, it is essential that the UNE functionality operates in a timely manner because of the crucial role played by such elements in providing quality retail services. This measure monitors individual network element (or element combinations), that do not have an apparent retail analog, to assure that CLECs are afforded a meaningful opportunity to compete when element (or combination) functionality is utilized.
Measurement Methodology:	**Timeliness of Element Performance = (Number of Times Functionality Executes Successfully Within the Established Timeliness Standard)/(Number of Times Execution of Functionality was Attempted)** **For CLEC Results:** Timeliness will be measured for each unique UNE (or combination of UNEs) that delivers unique. The number of times that the functionality executes properly within the established standard time frame will be accumulated and shown in comparison to the number of times that the execution of the functionality was requested or initiated. Illustrative examples of timeliness measures are shown below: • Database Updates: % completed within 24 hours • Post Dial Delay: % calls routed to CLEC OS platform within 2 seconds **For ILEC Results:** Identical measurements are performed where the ILEC employs the same or reasonably comparable functionality. Where such analogs do not exist, the ILEC is expected to establish benchmark performance levels jointly with the CLEC requesting the functionality. **Other Clarifications and Qualification:** • The preceding list of elements is illustrative and is not to be considered exhaustive • ILEC failure to provide timeliness performance that is no worse than what its own operations experience when using comparable functionality or, where comparable functionality is not employed, failure to meet or exceed parameters established as result of negotiation with the CLEC, constitutes failure to deliver nondiscriminatory access. • For each element (or element combination) requested where a retail analog is not identified, the ILEC is expected to establish both a timeliness measure and a timeliness standard (ILEC functional analog or negotiated) jointly with the requesting CLEC unless that CLEC waives its right for such a measure. • Typical databases for which standards are currently expected are AIN, LIDB and 800 Number. • Comparisons of performance should be based upon the criteria for which the element was engineered. For example, if the element was engineered based upon average busy hour criteria, the comparison should be based upon the CLEC busy hour period (likewise for criteria such as busy day, busy season, or ten high days).

Service Quality Measurements

Measurement Detail

Reporting Dimensions:	**Excluded Situations:**
• By unique UNE or UNE combinations requested by the CLECs	• None
Data Retained Relating To CLEC Experience:	**Data Retained Relating to ILEC Performance:**
• Month • Element or Element Combination Identification • Result for Agreed Upon Availability Parameter	• To Be Determined
Performance Standard in Absence of ILEC Results:	If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete: • Performance Standards in this area are yet to be published.

Service Quality Measurements
Measurements Detail
Appendix A: Reporting Dimensions

Standard Service Groupings:	• Resold Residence POTS • Resold Business POTS • Resold Residence ISDN • Resold Business ISDN • Resold Centrex/Centrex-like • Resold PBX trunks • Resold Channelized T1.5 service • Other Resold Services • UNE Platform (at least DS0 loop + local switch + transport elements) • UNE Channelized DS1 (DS1 loop + multiplexing) • Unbundled DS0 Loop • Unbundled DS1 Loop • Other Unbundled Loops • Unbundled Switch • Other UNEs
Standard Order Activities:	• New Service Installations • Service Migrations Without Changes • Service Migrations With Changes • Local Number Porting • Move and Changes Activities • Feature Changes • Service Disconnects
Pre-Ordering Query Types:	• Due Date Reservation • Feature Function Availability • Facility Availability • Street Address Validation • Service Availability Information • Appointment Scheduling • Customer Service Records • Telephone Number • Rejected of Failed Queries (regardless of type)
Transmission Quality Parameter:	• Subscriber Loop Loss • Signal to Noise Ratio • Idle Channel Circuit Noise • Loop-Circuit Balance • Circuit Notched Noise • Attenuation Distortion

Service Quality Measurements
Measurements Detail
Appendix A: Reporting Dimensions

Speed of Connection Parameters:	• Dial Tone Delay • Post Dial Delay • Call Completion/Delivery Rate
Reliability Parameters:	• Network Incident Affecting >5000 Blocked Calls • Network Incidents Affecting >100,000 Blocked Calls
Disposition and Cause:	• Out of Service No Dispatch • Out of Service With Dispatch • Hold Open for Monitoring • Customer Premise Equipment Trouble (including Inside Wire) • No Trouble Found • Central Office Equipment • Interoffice Facilities • Loop/Access Line • All Other Troubles • No access *"Out of Service" means that the customer has no dial tone.* *"Dispatch" means that ILEC repair personnel must be dispatched to a location outside an ILEC building (to customer premises or other off-site facilities) to resolve the trouble.*

Service Quality Measurements
Measurements Detail
Appendix B: Glossary

A

Abandoned Call:	An abandoned call occurs when the caller hangs up after the call has been delivered, but before the receiving party has answered the call.
Attenuation Distortion:	Attenuation Distortion" should measure the variation in loss at different frequencies across the voice frequency spectrum (200Hz - 3400 Hz).

B

Call Completion Rate	The call completion rate for CLEC customers is determined by calculating the total number of calls placed by CLEC customers that were completed to the calling destination. The number of completed calls is then divided by the total # of call attempts made by CLEC customers during the reporting period.
Call Delivery Rate	The **call delivery rate** for CLEC customers is determined by calculating the total # of calls received by CLEC customers. This number of delivered calls is then divided by the total # of call attempts received by the ILEC for termination CLEC customers.
Completion:	A "completion" is the transaction that the ILEC sends to the CLEC to inform the CLEC that a requested order has been completed.

D

Data Response:	
Dial Tone Delay:	The "Dial tone delay" is determined for each trial completed during the reporting period by computing the time that transpires from a customer's going off-hook and the receipt of dial tone from the servicing central office. It should be measured in seconds and tenths of seconds. "Post dial delay" for each trial is determined for each trial completed during the reporting period by computing the time that transpires from when the last digit is dialed until a valid response is received by the customer. It should be measured in seconds and tenths of seconds

E

F

FOC	A "FOC" is a Firm Order Confirmation notification, which is the transaction that the ILEC will send to the CLEC to confirm that an order can be completed.

G

H

Held Orders:	"Held orders" are orders that the ILEC has confirmed (an FOC was returned to the CLEC) and that are overdue.

I

Idle Channel Circuit Noise	The idle channel circuit noise for each trial is determined for each trial completed during the reporting month by computing the difference between the noise that exists in the channel when no signals are present and the reference noise. The resulting accumulated idle channel circuit noise for all trials is divided by the total # of trials completed during the reporting period.
Interface:	The "interface" is the ILEC interface that allows the CLEC to access the ILEC system
Internal or Administrative Use:	

J

Jeopardy	A "jeopardy" is a transaction that the ILEC sends to the CLEC to inform the CLEC that a previously FOC'd order cannot be processed as specified in the original FOC.

K

Loop-circuit Balance	"Loops-circuit balance" should be measured in decibels and tenths of decibels above the reference noise. "Attenuation Distortion" should measure the variation in loss at different frequencies across the voice frequency spectrum (200Hz - 3400 Hz). It should be measured from the NID to the switch, and from the switch to the NID. It is measured by subtracting the loss at 1004 Hz from the loss at the frequency of interest, and should be reflected in tenths of decibels.

M

N

Network Incident:	A "Network incident" is an unplanned network occurrence that results in blocked calls

O

P

Post Dial Delay:	"Post dial delay" is the time that transpires from when the last digit is dialed until a valid response is received by the customer

Q

R

Receipt of Order:	
Return of Valid Completion:	

S

Signal to Noise Ratio:	Signal to Noise ratio is the ratio of usable signal being transmitted to the noise or undesired signal.
Subscriber Loop Loss:	The subscriber loop loss is by computing the difference between the strength of the signal as it enters the loop and the strength of the transmitted signal. Signal strength is measured in decibels rounded to the nearest tenth of a decibel. The resulting accumulated decimal strength is divided by the total number of trials completed during the reporting period.
Subsequent Reports:	Customer trouble reports where the customer calls to check on the status of a previous trouble report (initial or repeat) that has not been cleared (closed or resolved) at the time of the call.
Syntax Reject:	A "syntax reject" is the transaction that an ILEC will return to a CLEC when a the CLEC has submitted an order transaction that the ILEC's gateway cannot process due to violation of published rules for formatting or content.
System:	The "system" is the combination of ILEC gateways, communications links, hardware and software that, in combination, is used to perform or support business functions or execute supporting transactions.

T

Troubles	"Troubles" include all reported difficulties with performance of resold services or UNEs, whether the report is the initial or a repeated report, that the CLEC refersto the ILEC repair process/interface for resolution. Subsequent reports are categorized seperately.
Trouble Appointment:	A "trouble appointment" is a commitment made by the ILEC (to CLEC or to customer) to resolve a trouble.
U	
V	
W	
X	
Y	
Z	

MCI's Additional Performance Measurement Requirements

Including Measurements & Standards, Reporting Requirements, and Standard Order Activities

September 29th, 1997

Version 1.1

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Additional Reporting Requirements:

The ILEC shall provide MCI with reporting on it's ability to meet the Performance Standards set forth in the Measurements Detail section of the LCUG Service Quality Measurements (SQMs) document. For comparative purposes, this performance must be reported for: (i) The ILEC and its retail customers; (ii) The ILEC's Affiliates; (iii) All CLECs; and (iv) MCI. In addition, the ILEC must disaggregate such reporting into specific dimensions of service and time. The reporting dimensions outlined in the LCUG SQMs document are: standard service groupings, standard order activities, pre-ordering query types, transmission quality parameters, speed of connection parameters, and disposition and cause. In addition to the dimensions outlined in the LCUG SQMs document, the dimension Time should be reported to adequately capture a true parity curve. This Time reporting dimension should be represented in tenths of seconds, seconds, minutes, hours or days depending on the measurement.

An example of disaggregated reporting across service and time dimension would be: % of 1-4 lines installed in the 1st day, 2nd day, 3rd day, and > 10 days, etc.

Additional Measurements:

In addition to the measurements set forth in the LCUG Service Quality Measurements document, MCI must measure the following experiences to ensure that the end user experience is adequately measured. These measurements will serve to further ensure that local telephone service experiences are not negatively impacted simply by a customer choosing MCI as their local service provider. The tables below outline, by function, the necessary additional measurements and include a list of performance standards and formulas that are not a part of the LCUG SQMs document.

<table>
<tr><th colspan="2">Ordering and Provisioning Function:</th></tr>
<tr><td colspan="2">Orders Not Completed Within Specified Intervals</td></tr>
<tr><th colspan="2">Measurement Objective:</th></tr>
<tr><td colspan="2">Measures the percentage and mean completion interval of orders completed and not completed within specified intervals.</td></tr>
<tr><th colspan="2">Standard Order Activities (Updated List Including Number Porting and Suspend, Block Restore):</th></tr>
<tr><td colspan="2">• New Service Installations
• Service Migrations Without Changes
• Service Migrations With Changes
• Local Number Porting
• Move and Changes Activities
• Feature Changes
• Service Disconnects
• Line Suspend, Block and Restore</td></tr>
<tr><th>Performance Standards in Absence Of ILEC Results (Not Included In the LCUG SQMs Document):</th><th>Reporting Dimensions:</th></tr>
<tr><td>Number Porting:
• Automated cut over time within 2 hours
• Coordinated cut over time within 30 minutes
Suspend, Block, Restore:
• All orders completed within 5 business hours of receipt</td><td>• Standard Service Groupings
• Standard Order Activities
• Geographic Scope</td></tr>
<tr><th colspan="2">Measurement Formulas (Not Included In the LCUG SQMs Document):</th></tr>
<tr><td colspan="2">• Mean Completion Interval
• # of Orders Not Completed on Time x 100
Total # of Orders Completed</td></tr>
</table>

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Ordering and Provisioning Function:	
Orders Completed Within Specified Intervals	
Measurement Objective:	
Measures the percentage and mean completion interval of orders completed and not completed within specified intervals.	
Standard Order Activities (To Be Included In Existing LCUG List):	**Reporting Dimensions:**
• Local Number Porting • Line Suspend, Block and Restore	• Standard Service Groupings • Standard Order Activities • Geographic Scope
Performance Standards in Absence Of ILEC Results (Not Included In the LCUG SQMs Document):	
Number Porting: • Automated cut over time within 2 hours • Coordinated cut over time within 30 minutes **Suspend, Block, Restore:** • All orders completed within 5 business hours of receipt	
Measurement Formulas (Not Included In the LCUG SQMs Document):	
• # of Orders Completed on Time / Total # of Orders Completed x 100 • Mean Completion Interval	

Ordering and Provisioning Function:	
Percent Flow Through Orders	
Measurement Objective:	
Measures the percent of total orders processed directly to legacy provisioning system without manual intervention.	
Standard Order Activities (Updated List):	**Reporting Dimensions:**
• New Service Installations • Service Migrations Without Changes • Service Migrations With Changes • Local Number Porting • Move and Changes Activities • Feature Changes • Service Disconnects • Line Suspend, Block and Restore	• Standard Service Groupings • Standard Order Activities • Geographic Scope
Performance Standards in Absence Of ILEC Results (Not Included In the LCUG SQMs Document):	
Performance standard to be negotiated	
Measurement Formulas (Not Included In the LCUG SQMs Document):	
• # Orders Processed Through Legacy / Total Number Of Orders Sent x 100	

MCI's Additional Performance Measurement Requirements

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Ordering and Provisioning Function:	
Average Offered Interval	
Measurement Objective:	
Measures the average time from ILEC's receipt of an accepted service request to due date provided on order confirmation. Excludes orders where customer requested Due Date is beyond offered interval.	
Standard Order Activities (Updated List Including Number Porting and Suspend, Block Restore):	**Reporting Dimensions:**
• New Service Installations • Service Migrations Without Changes • Service Migrations With Changes • Local Number Porting • Move and Changes Activities • Feature Changes • Service Disconnects • Line Suspend, Block and Restore	• Standard Service Groupings • Standard Order Activities • Geographic Scope
Performance Standards in Absence Of ILEC Results (Not Included In the LCUG SQMs Document):	
Performance standard to be negotiated	
Measurement Formulas (Not Included In the LCUG SQMs Document):	
Average Offered Interval	

Maintenance and Repair Function:	
Number And Percent Of Maintenance Failures	
Measurement Objective:	
Measures the total number of failures as the total number of trouble reports where the trouble was closed out with a code indicating that the fault was an ILEC service problem.	
Disposition and Cause (Existing LCUG List):	**Reporting Dimensions:**
• Out of Service No Dispatch • Out of Service With Dispatch • Hold Open for Monitoring • Customer Premise Equipment Trouble (including inside Wire) • No Trouble Found • Central Office Equipment • Interoffice Facilities • Loop/Access Line • All Other Troubles • No Access	• Standard Service Groupings • Disposition and Cause • Geographic Scope
Performance Standards:	
Performance standard to be negotiated	
Calculations:	
• $\frac{\text{\# Of Maintenance Failures}}{\text{\# Of Trouble Reports}} \times 100$	

MCI's Additional Performance Measurement Requirements

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Note: # of Maintenance Failures = Central Office Equipment + Interoffice Facilities + Loop/Access Line